

The 191st ISIJ Meeting

Date

March 11 to 13, 2026

Reception: 8:15- 16:00 (March 11-12), 8:30 - 14:00 (March 13)

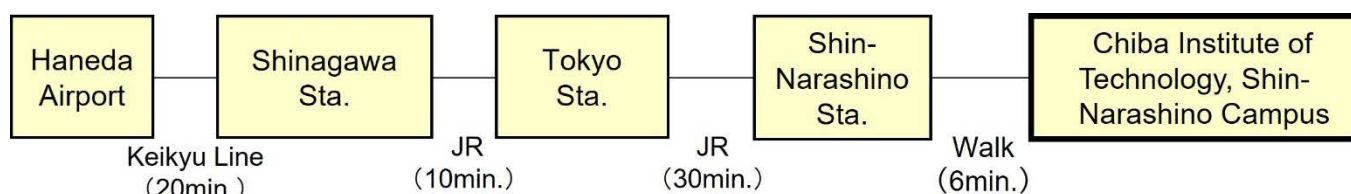
Venue

Chiba Institute of Technology, Shin-Narashino Campus

2-1-1, Shibazono, Narashino, Chiba, Japan 275-0023

Access to Chiba Institute of Technology

Shin-Narashino Campus is a six-minute walk from the South Exit of Shin-Narashino Station on the JR Keiyō Line.



* For more information, please see the following website.

<https://chibatech.jp/english/about/institute/access/#hdgLg5>

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The 191st ISIJ Meeting Portal Site

For the program and the latest information, please visit the portal site for the 191st ISIJ Meeting.

<https://pub.conf.it.atlas.jp/ja/event/isij2026s>



JP



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Campus Map

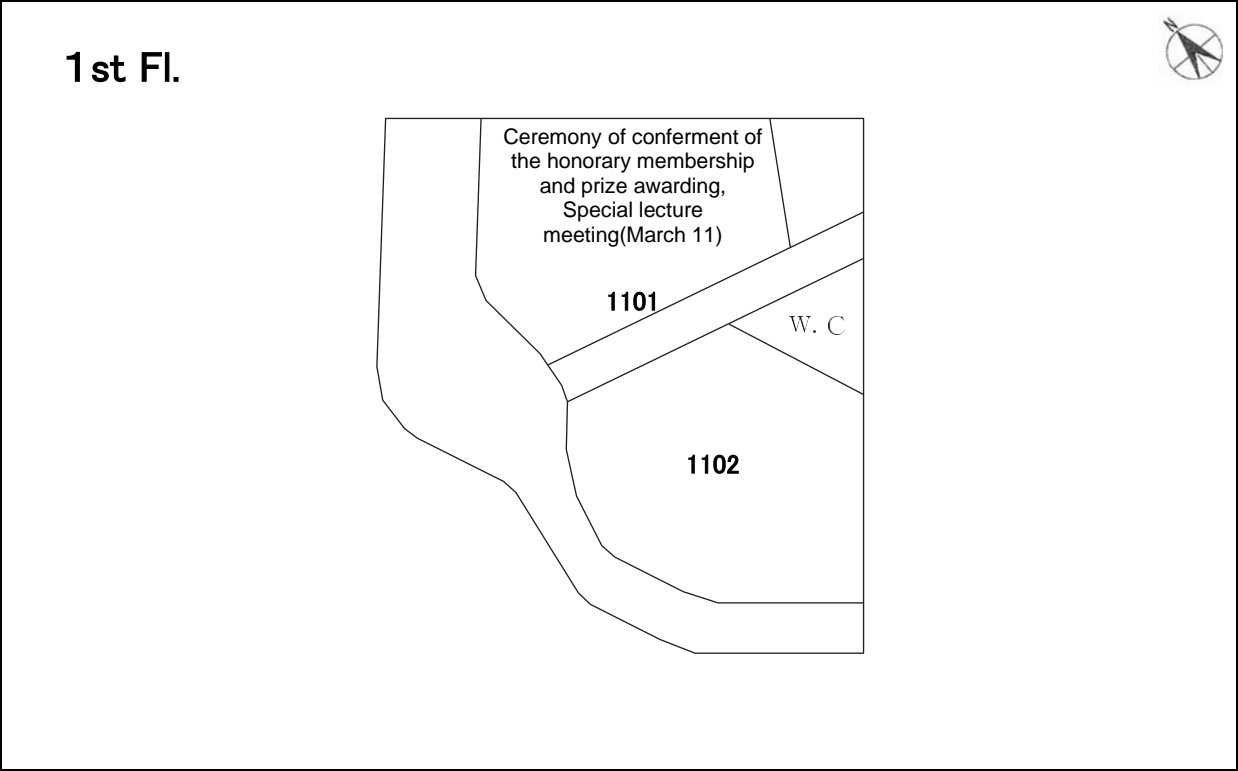
- Ⓐ Building No.1: Ceremony of conferment of the honorary membership and prize awarding, Special lecture meeting(1st Fl.)
- Ⓑ Building No.5: ISIJ Reception Desk & Secretariat(1st Fl.),
- Ⓒ Building No.8: Session Room 1-12(1st Fl. , 2nd Fl.)
- Ⓓ Canteen Building: Cafeteria(1st Fl.), Banquet, ISIJ Beer Party(2nd Fl.), Poster Session for Students(3rd Fl.)
- Ⓔ Shop



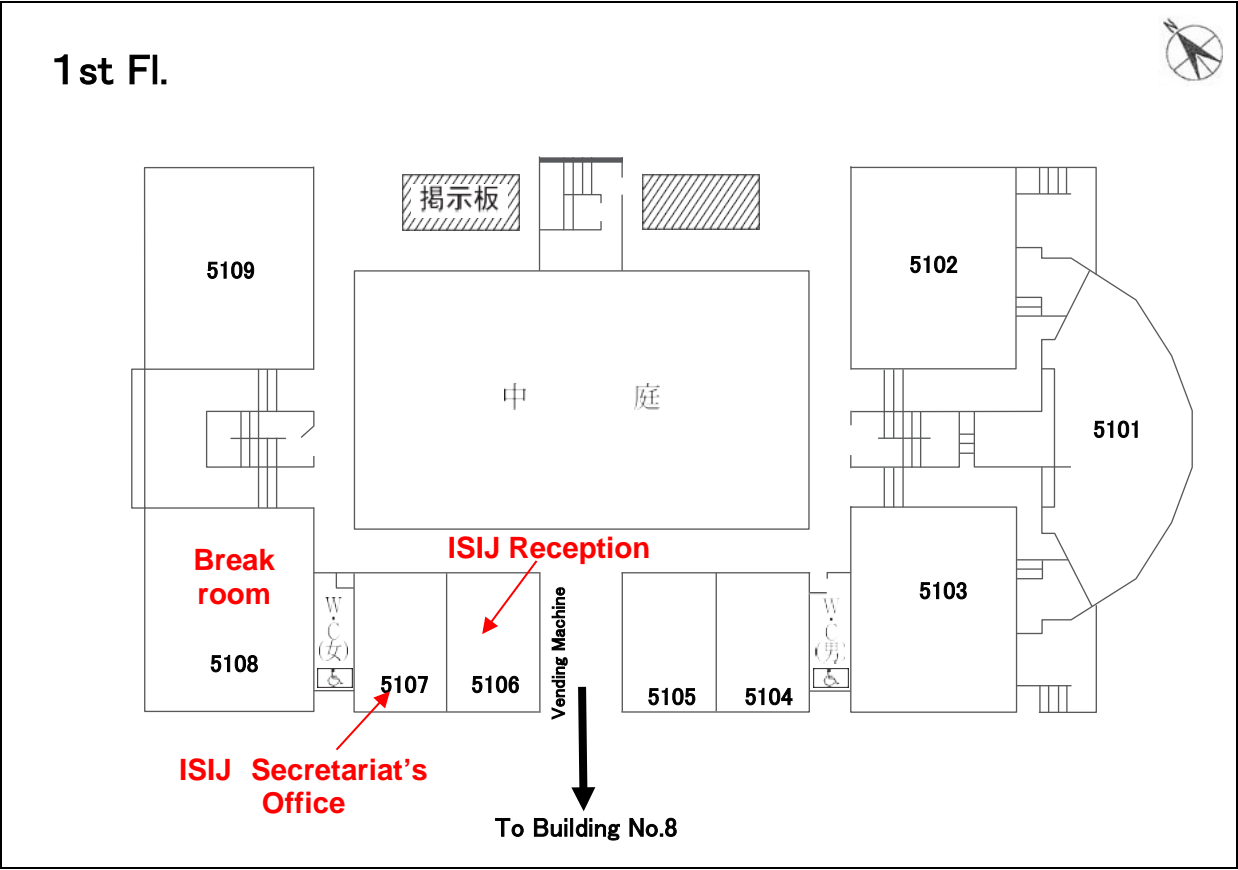
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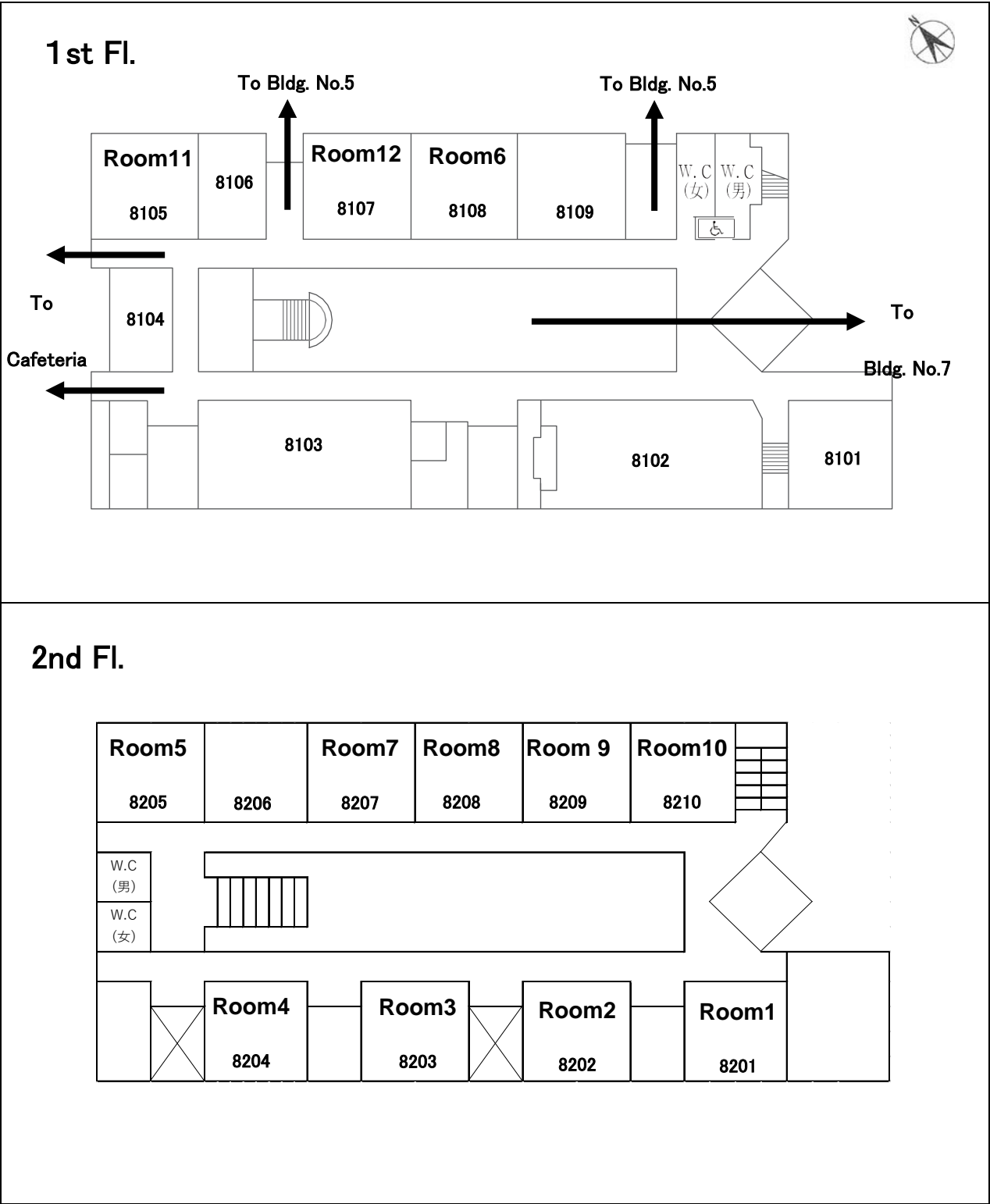
Building No.1



Building No.5



Building No.8



Program of the 191st ISIJ Meeting (March 11-13, 2026)

Discussion Sessions

Sustainable Systems

Lecture No.				
Discussion Session	Title	Speaker		Page
Utilization of phosphate in the steelmaking slag as fertilizer				
D1	Production of phosphorus concentrated slag by high-temperature treatment of steelmaking slag	S. Kakimoto	• • •	1
D2	Characteristics of element uptake by crop plants from phosphorus-concentrated slag fertilizer	J. Wasaki	• • •	3
D3	The effect of intercropping on element uptake from phosphorus-concentrated slag fertilizer	M. Abiko	• • •	5
D4	The characteristics and effective use of phosphorus-concentrated steelmaking slag as fertilizer -Why does Japanese agriculture expect for phosphorus-concentrated steelmaking slag?-	M. Tani	• • •	7
D5	Validation of effects of phosphorous-concentrated steelmaking slag through field trials (Field cultivation trials are shortcuts for social implementation)	H. Shimada	• • •	11
D6	Fertilizer potential of low phosphorus hot metal pretreatment slag	H. Yano	• • •	15

Instrumentation, Control and System Engineering

Current state and challenges for future advancement of instrumentation technology for iron making process Part 4

D7	Measurement technique of internal state in iron making process for stable operation	M. Fujigaki	• • •	17
D8	Heat generation and heat transfer behavior and evaluation of adsorption heat efficiency of iron-bearing materials for iron ore sintering process	H. Yanagida	• • •	18
D9	Temperature measurement of magnetite during microwave heating reduction using high-temperature optical fiber sensors	Y. Okabe	• • •	22
D10	Weight change and In Situ gas analysis during gas reduction of hematite using TDLAS	T. Kon	• • •	24
D11	Water content measurement of raw materials using the impedance method	M. Futagawa	• • •	26
D12	Vibration measurement technology of magnetic material by vibro-radar and its applicability to pig manufacturing process stabilization	T. Miwa	• • •	27

Processing for Quality Products

Rolling technology for high-quality, high-functional bar and wire rods

D13	(Keynote Lecture) 50 Years of bar and wire rolling: The failures and self-reflection	M. Asakawa	• • •	31
D14	Effect of entry tension on twisting behavior at the exit in wire rod rolling	R. Ifuku	• • •	35
D15	Computer simulation of wire drawing (Perspective for multi-scale materials analysis)	K. Saitoh	• • •	39
D16	(Invited Lecture) Evolution of motor drive and control technologies in bar and wire rod rolling mills	S. Ishibashi	• • •	40
D17	(Invited Lecture) Hot rolled wire eddy current testing	H. Yoshikawa	• • •	44

Program of the 191st ISIJ Meeting (March 11-13, 2026)

High Temperature Processes

Lecture No. Plenary Session	Title	Speaker	Page
New ironmaking 1			
1	Reduction kinetics of hematite powder by pulsed-discharged spouted bed	P. Khlaisongkhram	48
2	Effect for reduction behavior of iron oxide ore-charcoal composite containing thiophene-type organic sulfur	Y. Iwatani	49
3	Effect of pyrolysis of goethite phase on the reduction behavior of lump ore	K. Uno	50
New ironmaking 2			
4	Kinetic analysis of CH ₄ cracking reaction in direct reduced iron	N. Maeda	51
5	Influence of reduction conditions on the low-temperature oxidation of direct reduced iron (DRI)	S. Sano	52
6	Melting behavior of metallic iron using carbonaceous material recovered from exhausted gas with iron whisker as carburizing agent	R. Higashi	53
Frontier of R&D for production process of high-alloy steels and high-quality alloy steels 1			
7	Development of a molten steel [Cu] prediction model and scrap blending guidance system for electric arc furnaces	Y. Miwa	54
8	Improving the durability of RH immersion tube refractories during alloy 400 production	K. Aratani	55
9	Optimization of blowing oxygen conditions for improving efficiency in stainless steel refining furnaces	Y. Araki	56
10	Quality improvement of ESR ingots for high-strength stainless steel	K. Sekizawa	57
11	Detoxification of stainless-steel slag with resource recovery of hexavalent chromium and calcium	H. Kubo	58
Frontier of R&D for production process of high-alloy steels and high-quality alloy steels 2			
12	Equilibrium between molten Fe-Ni alloy and Al ₂ O ₃ -MnO-SiO ₂ slag	H. Fukaya	59
13	Distribution of inclusions in unidirectionally solidified Fe-36%Ni alloy	G. Nakamura	60
14	Effect of Fe and Cr on Ti-n equilibrium in molten Ni alloys at 1873 K	S. Narita	61
15	Formation behavior of sulfides during solidification of Fe-Cr-Mn-S alloys	R. Watanabe	62
16	Equilibrium between molten Fe-Mn-Ti-S alloy and sulfide	Y. Sakurada	63
Evaluation of agglomerated ore			
17	<i>In-situ</i> observation of cracks formation in iron ore pellets under hydrogen reduction conditions	K. Momma	64
18	Evaluation of the reducibility of low-grade iron ore pellets	G. Sato	65
19	Effect of distribution of MgO source on sinter microstructure and low-temperature reduction disintegration	M. Yamakawa	66
20	3D microstructure analysis of reduced sinter ore using X-ray CT	T. Takayama	67
Coke, Refractory			
21	(ISIJ Young Researcher Award) Investigation of the governing mechanisms of coke size	S. Matsuo	
22	Influence of the pore structure on coke strength evaluated using DEM	M. Watanabe	68
23	Damage mechanism and service life improvement of torpedo car roof refractories	W. Hirata	69
Blast furnace			
24	(Paper Award for Young Researchers) Effect of the accumulation of molten slag and iron at the blast furnace hearth on the gas pressure drop	R. Matsunaga	70
25	Development of unsteady state analysis method using mathematical model for blast furnace	Y. Inagaki	71
26	Evaluation of local fluidization behavior caused by shaft gas injection into a blast furnace based on cold model experiments	S. Uchida	72
Transport phenomena and high temperature reactions			
27	(Sawamura Award) Compositional dependence of phonon mean free path in silicate glasses	S. Sukenaga	73
28	Measurement of dissolution rate of MgO into static molten CaO-FeO-SiO ₂ slag	K. Urata	74
29	Thermal conductivity measurement of the Na ₂ O-SiO ₂ melts by hot-wire method with optimized current	K. Saito	75
30	Kinetics study of manganese direct alloying by aluminothermic reduction from ladle refining slag	K. Sripushpa	76

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Nobel processing forum research introduction 1

31 Advancing microwave-assisted SiC synthesis technology for simultaneous conversion of silicon sludge and CO ₂	J. Fukushima	• • •	77
32 Microwave effect and local thermal equilibrium	K. Kashimura	• • •	78
33 Temperature recovery of undercooled liquid alloy under imposition of rectangular wave electromagnetic force	M. Makimura	• • •	79
34 Manufacturing of uniform-diameter silicon spheres for solar cells by application of electric field and intermittent electromagnetic force	S. Yamaji	• • •	80

Nobel processing forum research introduction 2

35 Model experiments on dispersion and orientation of fibers in liquid by ultrasound	T. Kobuchi	• • •	81
36 The consolidation mechanism of the slag from reducing electric furnace	T. Kozuka	• • •	82
37 High-efficiency processing of iron and steel by-products via electrical pulse disintegration	H. Kubo	• • •	83

Quantification of solidification phenomena using multiple approaches VII-1

38 Three-dimensional and time-resolved observation of growth and settling behaviors of equiaxed dendrites using 4D-CT	T. Narumi	• • •	84
39 Measurement of crystallographic orientation distribution before and after massive-like transformation in Fe-0.05C-0.6Mn-0.3Si using 4D-CT+XRD	K. Tamura	• • •	85
40 Estimation of material parameters from solidification microstructure images using high-performance phase-field simulation and machine learning	T. Takaki	• • •	86
41 Semi-solid deformation simulations with multi-phase-field lattice Boltzmann model: evaluations for effects of grain morphology	N. Yamanaka	• • •	87
42 Analysis of microsegregation under liquid flow using lattice boltzmann – Quantitative CA model	K. Kaneko	• • •	88

Quantification of solidification phenomena using multiple approaches VII-2

43 Development of a CALPHAD-coupled phase-field model for predicting microstructure evolution in Fe–C steels	T. Morino	• • •	89
44 Molecular dynamics analysis of solid-liquid interfacial energy in undercooled system	K. Urashima	• • •	90
45 Free energy surface of nucleation via metadynamics	T. Yamamura	• • •	91
46 Al–Cu alloy solidification interfaces by large-scale coarse-grained molecular dynamics	Y. Shibuta	• • •	92

Microstructure formation and fundamentals of solidification 1

47 (Mishima Medal) Research and development on controlling the casting microstructure of steel	N. Yoshida		
48 (Tawara Award) Influence of solidification conditions on formation of carbides and shrinkage porosity in 8%Cr type die steel	Y. Sumi	• • •	93
49 Measurement of partition coefficient at low solid fraction in Fe-based alloy with peritectic reaction	S. Yano	• • •	94

Microstructure formation and fundamentals of solidification 2

50 (Sawamura Award) Nucleation-controlled selection of metastable ferrite in solidification of Fe-22mass%Mn-0.7mass%C alloy	T. Narumi	• • •	95
51 Influence of Si, Mn on subscale properties	T. Odagaki	• • •	96
52 (ISIJ Research Promotion Grant) Inverse columnar-equiaxed transition in stainless steels melt by laser beam for additive manufacturing	M. Okugawa	• • •	97

Young engineer session of coke-making 1

53 Improvement of coking chamber wall repair methods	N. Sato	• • •	98
54 Air port blockage prevention by protection block installation	K. Yamaguchi	• • •	99
55 Recovery of the coke oven conditions (Cause of deterioration coke oven conditions and reduction of pushing electricity by coal blending)	K. Yamada	• • •	100
56 Recovery of the coke oven conditions (Decrease of non-operation chambers and recovery of production amount)	S. Shiratori	• • •	101
57 Recovery of the coke oven conditions (Improved repair method for cross tie-rod of coke oven)	Y. Nishina	• • •	102

Young engineer session of coke-making 2

58 Estimation of the thermal history of coke using crystallite size	Y. Kimura	• • •	103
59 Production of high strength carbon agglomerates from CO gas	K. Takehara	• • •	104
60 Application of cellulose nanofibers as a binder of coal briquettes	T. Takashima	• • •	105
61 Approaches for heat exchanger capacity restoration in the by-products recovery process	T. Shima	• • •	106

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Electric furnace and secondary refining

62	Numerical simulation of molten steel flow in DC electric furnace with turn coil	Y. Ohki	• • •	107
63	Influence of plasma including nitrogen on Cu and Sn removal from molten pig iron (2) (Evaluation of the effect of plasma irradiation vs non-irradiation on Cu and Sn enrichment in particles scattered by bubble bursting)	T. Gunji	• • •	108
64	Fouling inhibition for cooling water system of vacuum degassing equipment	T. Ono	• • •	109

Thermodynamics

65	(Scientific Achievement Merit Prize) Fundamental research and applications in ferrous metallurgical science and technology	Y. Kobayashi		
66	Distribution of phosphorus between Ca_2SiO_4 + liquid multi-phase slag and molten iron at 1573 K	M. Hasegawa	• • •	110
67	Chemical equilibrium of carbon in recycled material of stainless steel	H. Todoroki	• • •	111

Inclusion

68	(Distinguished Article Award) Direct measurement of agglomeration force exerted between alumina particles in molten steel	K. Sasai	• • •	112
69	(Tawara Award) Agglomeration force exerted between various types of solid-phase oxides in molten steel	K. Sasai	• • •	113
70	Effect of Ce on TiN inclusions and As-cast structure of low carbon titanium micro-alloyed steel	Z. Ma	• • •	114
71	Formed inclusions in Al-killed steel melts refined by a $\text{CaO-Al}_2\text{O}_3$ -MgO refining slag	M. Jiang	• • •	115

Separation and recovery of elements (High Temperature Processes • Sustainable Systems)

72	(ISIJ Research Promotion Grant) Effect of carbon materials on the carbothermic reduction of phosphoric acid for sustainable white phosphorus production	A. Siahaan	• • •	116
73	Separation of phosphorus from high phosphorus Mn ore using acetylacetone	G. Wenfeng	• • •	117
74	(ISIJ Research Promotion Grant) Magnetic- and vibration-assisted separation behavior of steel-copper mixed powders and motor-derived crushed powders	Y. Koizumi	• • •	118

Slag recycling (High Temperature Processes • Sustainable Systems)

75	Removal of phosphorus from steelmaking slag in molten CaCl_2	X. Yang	• • •	119
76	Dissolution of nutrient components from steelmaking slag in upland soil	T. Iwama	• • •	120
77	Effect of biofilm coating on the cloudiness of steelmaking slag immersed in artificial seawater	N. Hirai	• • •	121

Sustainable Systems

Lecture No.

Plenary Session

Title

Speaker

Page

Cutting-edge of green technologies for carbon neutral of steelmaking industry

78	Evaluation of the input and output performance in a packed bed system with medium to high-temperatures latent heat storage pellets using a numerical model	T. Nakamura	• • •	122
79	Effect of superheating on the solidification heat-release temperature of Al-based latent heat storage microcapsules	Y. Shimizu	• • •	123
80	Environmental trade-offs of steel industry decarbonization: A life cycle assessment of by-product losses and burden shifting in the transition from BF-BOF to EAF steelmaking	A. Adeniyi	• • •	124
81	Energy saving through heat pump integration in steel sheet treatment process	T. Uchino	• • •	125

Historical metallurgy

82	Visualization of high purity Iron (Tamahagane) by steel art engineering (Metallurgical Yantra)	Y. Matsui	• • •	126
83	Scientific analysis of painting materials in the 17 th and 18 th century greek icons	Y. Homma	• • •	127
84	Scientific analysis on the degradation products of combined metal leaf (Awasehaku) used in Kirikane	A. Hotokeyama	• • •	128

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Instrumentation, Control and System Engineering

Lecture No.	Title	Speaker	Page
Plenary Session			
Instrumentation			
85	Development of in-line oxide film thickness measurement technique for CGL direct-fired furnace	T. Okabe	• • • 129
86	Dimensional measurement of steel materials during conveyance using microwave sensors under interference from surrounding equipment	K. Murota	• • • 130
87	(ISIJ Research Promotion Grant) Eddy current testing of non-magnetic metal plates using optically pumped magnetometer	T. Sasayama	• • • 131
88	Enhancing thermal robustness of a thin-plate width gauge and verification by camera pose monitoring	T. Miura	• • • 132
System			
89	A proposal for systemic optimization considering energy flows in steel production (Building a model incorporating energy flow into production planning problems)	M. Hamada	• • • 133
90	Development of a deep learning-based technology for automatic fracture surface identification	K. Hirano	• • • 134

Processing for Quality Products

Lecture No.	Title	Speaker	Page
Plenary Session			
Rolling			
91	(Shiraishi Commemorative Prize) Research into improving the performance of rolling and processing rolls for steel production	M. Ueno	
92	Elasto-plastic 3D finite element analysis of stress distribution in a steel sheet during cold rolling	N. Honda	• • • 135
93	Control and setup of strip wedge and crown in hot finisher rolling	Y. Anbe	• • • 136
Scale			
94	Liquid-phase stabilization induced by elemental enrichment at grain boundaries during high-temperature oxidation of Cu-containing medium-carbon steel	Y. Tateyama	• • • 137
95	The effect of Si and scale microstructure on the formation of liquid Cu in high temperature oxidization	H. Kumeta	• • • 138
96	Behavior of tramp element at solid iron / iron oxide interface	T. Miki	• • • 139
97	Behavior of molten Cu exogenously introduced at the scale/iron interface	R. Sugiyama	• • • 140
98	Porous oxide layers in water spray cooling	O. Resl	• • • 141
Deformation and surface			
99	(Nishiyama Commemorative Prize) Studies on plasticity theory of polycrystalline metals	K. Yoshida	• • • 142
100	Elastic-plastic incremental simulation by the continuum theory of dislocations	K. Komori	• • • 143
101	Development of high-efficiency turning and surface microstructure control process for Ti-6Al-4V alloy utilizing tool characteristics	D. Miyajima	• • • 144
102	Nitriding process on steel surfaces in an open atmosphere using laser-induced plasma	E. Hashiba	• • • 145
Joining			
103	(Nishiyama Commemorative Prize) Weld solidification cracking susceptibility of stainless steels and the prediction method	K. Kadoi	• • • 146
104	(Tawara Award) Formation mechanism of joint interface in cold spot joining method and its joint properties	T. Aibara	• • • 147
105	(ISIJ Research Promotion Grant) Microstructure and mechanical properties of linear friction welded S45C joints	J. Choi	• • • 148

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Microstructure and Properties of Materials

Lecture No.	Title	Speaker	Page
Plenary Session			
Hydrogen embrittlement 1			
106	Lattice defects present beneath hydrogen embrittlement fracture surfaces in martensitic steel	R. Kuribayashi	149
107	(ISIJ Research Promotion Grant) Atomistic model analysis of hydrogen trapping behavior at strained grain boundaries in pure Fe	R. Matsumoto	150
108	First-principles calculations of hydrogen trapping energy at some edge dislocation cores in iron	M. Yamaguchi	151
109	Construction of a fast and highly accurate Fe-H binary system machine learning interatomic potential	K. Ito	152
110	Prediction of the effect of alloying elements on hydrogen solubility of α -Fe using first-principles calculations	K. Ito	153
Hydrogen embrittlement 2			
111	(ISIJ Young Researcher Award • ISIJ Research Promotion Grant) Time-dependent behavior of hydrogen uptake into pure iron during cathodic hydrogen charging	S. Ajito	
112	(ISIJ Research Promotion Grant) Imaging hydrogen entry behavior into a high-strength steel inside crevice	H. Kakinuma	154
113	Evaluation of hydrogen embrittlement cracking behavior of ultra-high strength steel sheets under different hydrogen charging conditions	M. Yagura	155
114	Effects of pre-strain and evaluation methods on hydrogen embrittlement of austenitic stainless steels	M. Kawamori	156
Strength and deformation behavior 1			
115	(Nishiyama Commemorative Prize) Research and development to improve performance of high strength steels	T. Murakami	157
116	Inhomogeneity of deformation and transformation in multi-phase steel containing retained austenite	Y. Murakami	158
117	Unique deformation behavior of Fe-30Ni metastable austenitic alloy processed by cyclic-transformation	M. Dono	159
118	Dynamic strain aging and strain rate sensitivity in carbon-added Fe-Cr-Ni austenitic steels	H. Nishida	160
119	(Nishiyama Commemorative Prize) Influence of alloy elements on the reheat cracking susceptibility in weld metal of Cr-Mo steel	M. Yuga	161
Martensitic transformation 1			
120	(Nishiyama Commemorative Prize) Variant pairing rule and its geometry in α' -martensite	T. Inamura	162
121	Calculation of martensite transformation curves based on effects of neighbor austenite orientation	T. Tomida	163
122	Effect of pre-existing BCC phases on martensitic transformation in steels	M. Takahashi	164
Martensitic transformation 2			
123	Characteristics of strain-induced martensitic transformation	Y. Kinoshita	165
124	in-situ high-resolution imaging and 3D crystallographic analyses for FCC/HCP/BCC transformation by synchrotron X-ray	O. Takakuwa	166
125	3D in-situ characterization for deformation-induced martensitic transformation in austenitic steel by synchrotron X-ray nano-tomography	T. Iwano	167
126	(ISIJ Research Promotion Grant) Phase stability and deformation behavior in the stir zone of friction stir welded Fe-Mn-Si seismic damping alloy	T. Yamashita	168
Surface treatment & Corrosion 1			
127	(Shiraishi Commemorative Prize) Degradation mechanisms of steel materials under harsh environments —Scaling and corrosion in geothermal power plants—	M. Morita	
128	(Nishiyama Commemorative Prize) Electrochemical study on corrosion and hydrogen embrittlement of steels	Y. Sugawara	169
129	(Nishiyama Commemorative Prize) Study on solution technologies for corrosion prevention of steel products	D. Mizuno	170
130	(ISIJ Young Researcher Award • ISIJ Research Promotion Grant) Localized corrosion mechanisms and improvement of corrosion resistance of steels	M. Nishimoto	
131	Investigation of corrosion resistance of steel products under dust from ironmaking process	M. Omoda	171

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Surface treatment & Corrosion 2

132 (ISIJ Young Researcher Award) Development of technology to prevent dross defects in Molten Zinc Bath galvanizing process	T. Konishi		
133 Effect of Si and Mn in steel sheets on solid–liquid interfacial reactions during hot-dip Zn–55%Al alloy galvanizing	D. Kim	• • •	172
134 Structural control of granular chromium coatings in electroplating for can steel sheets	Y. Nakagawa	• • •	173
135 Deposition characteristics of Cr on Ni alloy layer in Cr plated steels for can	Y. Kawamura	• • •	174

Strength and deformation behavior 2

136 (Nishiyama Commemorative Prize) Microstructure control and ductile fracture behavior of high strength steel	M. Azuma	• • •	175
137 (Nishiyama Commemorative Prize) Development of ultra high strength steel with high formability for automobiles	Y. Futamura	• • •	176
138 Microstructural factors affecting uniform elongation of high-strength, high-ductility, high-carbon steel with different tempering temperatures	Y. Sato	• • •	177
139 Effect of initial nodule size on impact toughness of elongated pearlitic steel	R. Ueji	• • •	178
140 Influence of aging on the Hall-Petch Coefficient of Fe-3mass%Si	K. Hani	• • •	179

Strength and deformation behavior 3

141 (Paper Award for Young Researchers) Effects of manganese on microstructure and work-hardening behavior of low-carbon lath martensitic steel	K. Ueno	• • •	180
142 Effect of dislocation characteristics on deformation behavior in tempered martensite and bainite of low-alloy steel	K. Miwa	• • •	181
143 Effect of tempering on non-uniform microscopic deformation behavior of Martensitic steel	K. Akizuki	• • •	182
144 Effect of carbon content on plastic deformation behaviour of martensitic steels using high-resolution digital image correlation	S. Liu	• • •	183
145 Development of strain scanning method with transmission geometry using synchrotron-based high-energy X-rays	Y. Hayashi	• • •	184

Electrical steel

146 Effect of initial orientation on crystal orientation change in Fe-3%Si under simple shear	N. Wada	• • •	185
147 Persistent slips and evolution of dislocation structures in Fe-3wt.% Si alloy	K. Aranami	• • •	186
148 Controlling crystallographic texture of Fe-6.5Si flake powder and effect on magnetic properties	S. Motozuka	• • •	187

Recrystallization & Texture

149 (Nishiyama Commemorative Prize) Phase-field simulation of grain growth in systems containing pinning particles	Y. Suwa	• • •	188
150 Crystal plasticity finite element simulation of one-way and two-way cold rolling in pure iron	A. Yamaguchi	• • •	189
151 Prior austenite grain refinement in an age-hardened martensitic steel by cold rolling or severe plastic deformation followed by short austenitization	G. Castro Guiza	• • •	190
152 Effect of initial microstructure on recrystallization mechanism of pearlite	D. Adachi	• • •	191

Heat resistant steel • Alloy 1

153 (ISIJ Young Researcher Award) Microstructure characterization for understanding the creep properties of heat-resistant steels	T. Hatakeyama		
154 (ISIJ Research Promotion Grant) Evaluation of initial oxidation and corrosion of SUS316 steel in acidic supercritical water	Y. Toda	• • •	192
155 Stress dependence of minimum creep rate and creep deformation behavior of Gr.91 and 2.25Cr-1Mo steels	F. Abe	• • •	193

Heat resistant steel • Alloy 2

156 Evaluation of hydrogen effects on creep properties of SUS316L using hollow specimens	K. Saito	• • •	194
157 Microstructures and mechanical properties of austenitic laves steel fabricated by L-PBF process	Y. Hasebe	• • •	195
158 Effect of rolling reduction of cold rolling in microstructure after aging of γ' -phase precipitation-strengthening Ni-based alloy	F. Ichikawa	• • •	196

Grain boundary segregation

159 Grain size effect on B and Mo segregation behaviors at austenite grain boundaries	J. Takahashi	• • •	197
160 Atomistic study of grain boundary character influence on solute segregation in α -Fe: Symmetric tilt and twist grain boundaries	L. Fan	• • •	198
161 Investigation of hydrogen segregation at the grain boundaries with different crystallographic character using atomic-scale simulations	K. Matsubara	• • •	199

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Aging and precipitation

162	(Sawamura Award) Multi-aspect characterization of low-temperature tempering behaviors in high-carbon martensite	Y. Zhang	• • •	200
163	Effect of Ti and Nb on hardness after low temperature aging in ferritic steel with supersaturated carbon	Y. Kobayashi	• • •	201
164	Characterization of the interaction mechanism between interphase precipitated alloy carbides and dislocations by transmission electron microscopy	Y. Kawahara	• • •	202

Diffusional transformation

165	Effect of initial austenite grain size on microstructural evolution during interrupted quenching and intercritical annealing of medium-Mn steel	K. Kawahara	• • •	203
166	Evaluation of solute carbon concentration in BCC iron by electrical resistivity measurement considering carbide precipitation	T. Masumura	• • •	204
167	Austenite growth and associated elemental partitioning during carburization of Fe-Mn alloy	K. Sato	• • •	205
168	Reverse transformation austenite nucleation sites in the bainitic microstructure of NiCrMoV steel	T. Noto	• • •	206

Hydrogen embrittlement 3

169	Effect of hydrogen on the elastic/plastic deformation behaviors in as-quenched martensitic steel	K. Okada	• • •	207
170	(Sawamura Award) Microscopic mechanism of hydrogen-related quasi-cleavage fracture	A. Shibata	• • •	208
171	Analysis of hydrogen-related intergranular crack propagation process based on tensile tests with strain rate variation	K. Okuno	• • •	209
172	Strength evaluation of prior austenitic grain boundary in martensitic steel by <i>in-situ</i> miniature tensile test in hydrogen-plasma scanning electron microscope	K. Tomatsu	• • •	210
173	(Tawara Award) Process of white etching cracks formation in carburized bearing steel under rolling contact fatigue	D. Takazaki	• • •	211

Hydrogen embrittlement 4

174	(ISIJ Research Promotion Grant) Excellent resistance to low-temperature hydrogen embrittlement in SUS304L stainless steel with a slightly fine grain structure	S. Torizuka	• • •	212
175	Change of hydrogen amount of stainless steel charged by cathodic hydrogen charging technique at high temperature	R. Ohkuma	• • •	213
176	Quantitative determination of the influence of hydrogen on stacking fault energy in a FeNiCr austenitic steel by electron microscopy: Impact on deformation behavior	I. Gutierrez	• • •	214
177	Hydrogen trapping characteristics of precipitates in Ni-based superalloy 718 based on First-principles calculations and Thermal desorption analyses	R. Hara	• • •	215

Stainless steels

178	Microstructure evolution and mechanical properties of cold sprayed stainless steel SS304L	Y. Wang	• • •	216
179	Mechanical properties of a heat-resistant ferritic-stainless steel fabricated by laser powder bed fusion	T. Kitashima	• • •	217
180	Effect of alloying elements on the work-hardening behavior of martensitic stainless steel containing finely dispersed reverted austenite	H. Matsubayashi	• • •	218
181	Analysis of TiN growth behavior in molten stainless steel	S. Saito	• • •	219
182	Pitting corrosion resistance in LTHAZ of duplex stainless steels with different Ni, N contents	Y. Yoshioka	• • •	220

Ductility, Toughness, and Machinability

183	(Nishiyama Commemorative Prize) Development of low carbon lead-free free cutting steel contributing to environmental load reduction	N. Matsui	• • •	221
184	(Nishiyama Commemorative Prize) Dominant factors of HAZ toughness in high manganese austenitic steels	K. Ueda	• • •	222
185	Effect of grain size and Mo on low temperature toughness of tempered martensite in low alloy steel	H. Ogawa	• • •	223
186	Suppression of intergranular fracture by Mo addition in 10%Mn-0.1%C steel	H. Kubota	• • •	224
187	(ISIJ Young Researcher Award) Research on environmental resistance properties of steel products for energy industries	D. Izumi		

Fatigue

188	(Scientific Achievement Merit Prize) Fatigue crack generation mechanisms due to strain incompatibility in high strength alloys	O. Umezawa		
189	Effect of drawn strain on the fatigue properties of drawn pearlitic steel wire	T. Terahata	• • •	225
190	(ISIJ Research Promotion Grant) Development of cell structures dependent on grain orientation in fatigue of Fe-1 mass%Si polycrystalline alloys	T. Fujii	• • •	226
191	(ISIJ Research Promotion Grant) Elucidation of fatigue fracture mechanisms of dissimilar laser-welded lap joints of high-strength and mild steels	J. Arakawa	• • •	227

Program of the 191st ISIJ Meeting (March 11-13, 2026)

Microstructure prediction

192	(Asada Medal) Design of structural materials by a multiscale simulation without experimental parameter	R. Sahara		
193	(Nishiyama Commemorative Prize) Development and application of microstructure prediction models in structural materials	Y. Tsukada	• • •	228
194	(ISIJ Research Promotion Grant) Direct inverse deformation analysis of dual-phase steel via representative volume element U-Net Deep Learning	T. Matsuno	• • •	229
195	Nonlinear stereology: Estimating 3D features from 2D data	Y. Adachi	• • •	230

Microstructure control

196	Minimization in temperature distribution of the specimen used for thermos-mechanical treatment simulator by combining direct current heating and high-frequency induction heating (2nd report)	S. Torizuka	• • •	231
197	Effects of hot deformation on low carbon bainite microstructure	M. Matsuda	• • •	232
198	Effect of Si on the formation of inhomogeneous microstructure in martensitic steel during cooling -2	S. Yoshioka	• • •	233
199	(Nishiyama Commemorative Prize) Applied research on the control of high strength steel microstructure	K. Hayashi	• • •	234

Process Evaluation and Material Characterization

Lecture No.	Title	Speaker		Page
Plenary Session				
Crystal structure analysis / Precipitate and inclusion analysis				
200	(Shiraishi Commemorative Prize) Development and application of solid-state NMR for chemical structure characterization of raw materials and byproducts	K. Kanehashi		
201	Chemical structural analysis for coal and carbonized biomass by solid state ¹⁷ O NMR	S. Ichikawa	• • •	235
202	Development of dispersion technique of precipitates in steels in the liquid phase using Hansen solubility parameter	D. Itabashi	• • •	236
203	Three-dimensional imaging of CaO-Al ₂ O ₃ inclusions in steel using ionoluminescence	S. Imashuku	• • •	237
Surface and state analysis / Elemental analysis				
204	(Scientific Achievement Merit Prize) In situ synchrotron radiation observation of iron and steel reactions	M. Kimura		
205	Relationship between residual stress and deformation process in metals and alloys subjected to non-uniform deformation	S. Suzuki	• • •	238
206	Internal standard methods for steel chemical analyses using continuum-light-source flame atomic absorption spectrometry	K. Nakayama	• • •	239
207	Development of a simultaneous quantitative method for oxygen, nitrogen, and hydrogen in Steel by high resolution mass spectrometry method after fusion in Argon	Y. Tobu	• • •	240

Program of the 191st ISIJ Meeting (March 11-13, 2026)

ISIJ and JIMM Joint Sessions

Lecture No. Joint Session	Title	Speaker	Page
Titanium and its alloys 1			
J1	Mechanical properties of linear friction welded joints in Ti-5Al-2Fe-3Mo alloy	Y. Aoki	• • • 241
J2	Effect of temperature on creep behavior of Ti-6Al-4V within the warm-temperature	S. Hashimoto	• • • 242
J3	Thermal expansion behavior of quenched martensite in Ti-15Nb _x Al alloys	Y. Mantani	• • • 243
Titanium and its alloys 2			
J4	Development of non-equiatomic high-entropy alloys with cuboidal BCC secondary precipitates	K. Kim	• • • 244
J5	Investigation of mechanical properties of Ti-Zr alloys with compositional modulation focusing on microstructure	H. Morizono	• • • 245
J6	Refinement of α -phase precipitation in Ti-Fe-O alloys through thermomechanical processing	K. Sugita	• • • 246
Physico-chemical properties of high temperature melts 1			
J7	Density, volume and viscosity of alkali silicate slag melts and glasses	H. Takebe	• • • 247
J8	Viscoelastic behavior of multi-phase slags at elevated temperatures	N. Saito	• • • 248
J9	Measurement of thermophysical properties of electric smelting furnace slag	S. Jinyang	• • • 249
J10	Composition effects on electrical conductivity in ESR flux	H. Tanoue	• • • 250
Physico-chemical properties of high temperature melts 2			
J11	Oscillation behavior analysis of molten Fe-Oxide compound droplets levitated in ISS-ELF	Y. Seimiya	• • • 251
J12	(ISIJ Research Promotion Grant) Density measurements of Fe-Ti and Fe-Zr melts to determine stable Laves phase precipitation conditions	M. Watanabe	• • • 252
J13	Effect of rare-earth oxides on MoO ₃ solubility in (Na ₂ O, CaO) • 2SiO ₂ melts	Q. Huang	• • • 253

The timetable of the 191st ISIJ Meeting
(March 11-13, 2026 at Chiba Institute of Technology)

Session Room	March 11 (Wed.)		March 12 (Thu.)		March 13 (Fri.)	
	AM	PM	AM	PM	AM	PM
Session Room 1 No.8 Bldg. 2F 8201	New ironmaking 1・2 [1-6] (9:20-11:35)	-	Evaluation of agglomerated ore [17-20] (10:00-11:20)	Coke, Refractory / Blast furnace [21-26] (14:20-16:35)	Young engineer session of coke-making 1・2 [53-61] (9:00-12:15)	Electric furnace and secondary refining [62-64] (13:00-14:00)
Session Room 2 No.8 Bldg. 2F 8202	Frontier of R&D for production process of high-alloy steels and high-quality alloy steels 1・2 [7-16] (9:00-12:30)	-	Transport phenomena and high temperature reactions [27-30] (10:30-11:50)	Nobel processing forum research introduction 1・2 [31-37] (14:00-16:40)	-	-
Session Room 3 No.8 Bldg. 2F 8203	Approaches to heat transfer and melting mechanisms of scrap in electric arc furnaces (9:00-12:10) [Charge-Free]	-	Quantification of solidification phenomena using multiple approaches VII-1・2 [38-46] (9:00-12:20)	Microstructure formation and fundamentals of solidification 1・2 [47-52] (14:00-16:20)	Thermodynamics / Inclusion [65-71] (9:10-11:50)	ISIJ and JIMM Joint Sessions Physico-chemical properties of high temperature melts 1・2 [J7-J13] (13:00-15:40)
Session Room 4 No.8 Bldg. 2F 8204	Utilization of phosphate in the steelmaking slag as fertilizer [D1-D6] (9:00-12:30)	-	Cutting-edge of green technologies for carbon neutral of steelmaking industry [78-81] (10:00-11:20)	Separation and recovery of elements / Slag recycling [72-77] (14:30-16:45)	-	-
Session Room 5 No.8 Bldg. 2F 8205	-	-	Supply-Demand matching for steel scrap quality (9:30-11:40) [Charge-Free]	Historical metallurgy [82-84] (14:00-15:00)	-	-
Session Room 6 No.8 Bldg. 1F 8108	-	-	-	ISIJ and JIMM Joint Sessions Titanium and its alloys 1・2 [J1-J6] (14:00-16:20)	Instrumentation / System [85-90] (9:00-11:20)	Current state and challenges for future advancement of instrumentation technology for iron making process Part 4 [D7-D12] (13:20-16:00)
Session Room 7 No.8 Bldg. 2F 8207	-	-	Rolling technology for high- quality, high-functional bar and wire rods [D13-D17] (9:00-12:00)	Rolling / Scale [91-98] (14:00-17:00)	Deformation and surface / Joining [99-105] (9:00-11:40)	-
Session Room 8 No.8 Bldg. 2F 8208	Hydrogen embrittlement 1・2 [106-114] (9:00-12:15)	-	Final report of the research group on "Local plasticity-driven damage evolution and fracture (9:00-17:30) [Charge-Free]	Innovative evaluation techniques for hydrogen entry and hydrogen trapping - VI (9:00-12:15) [Charge-Free]	Hydrogen embrittlement 3・4 [169-177] (12:50-16:00)	
Session Room 9 No.8 Bldg. 2F 8209	-	-	-	Surface treatment & Corrosion 1・2 [127-135] (14:00-17:20)	Stainless steels [178-182] (9:40-11:20)	High Functionality of Stainless Steel Leading to a Sustainable Society (13:00-16:00) [Charge-Free]
Session Room 10 No.8 Bldg. 2F 8210	Strength and deformation behavior 1 [115-119] (10:00-11:40)	-	Strength and deformation behavior 2 [136-140] (10:00-11:40)	Strength and deformation behavior 3 [141-145] (14:00-15:40)	Ductility, Toughness, and Machinability [183-187] (10:00-11:40)	Fatigue [188-191] (13:00-14:20)
Session Room 11 No.8 Bldg. 1F 8105	-	-	Electrical steel / Recrystallization & Texture [146-152] (9:00-11:40)	Heat resistant steel・Alloy 1・2 [153-158] (13:30-15:45)	Approach of grain boundary engineering for achieving high-permance steels (9:00-16:00) [Charge-Free]	
Session Room 12 No.8 Bldg. 1F 8107	Martensitic transformation 1・2 [120-126] (9:20-11:55)	-	Grain boundary segregation / Aging and precipitation [159-164] (9:30-11:45)	Diffusional transformation [165-168] (14:00-15:20)	Microstructure prediction / Microstructure control [192-199] (9:00-12:00)	-
Session Room 13 No.8 Bldg. 1F 8104	-	-	-	Crystal structure analysis / Precipitate and inclusion analysis [200-203] (15:00-16:20)	Surface and state analysis / Elemental analysis [204-207] (9:30-10:50)	-
Ceremony conferment of the honorary membership and prize awarding, Special lecture meeting (13:30-17:20 at No.1 Bldg. Room1101) Banquet (18:00-20:00 at No.13 Bldg. (Cafeteria) 2nd Fl.) [8,000yen]			Poster Session for Students (12:00-14:30 at No.13 Bldg. (Cafeteria) 3rd Fl. [Charge-Free] ISIJ Beer Party (17:30-19:00 at No.13 Bldg. (Cafeteria) 2nd Fl.) [1,000yen]			

[]: Lecture Number
(): Lecture Time
■: Event to be held during the ISIJ Meeting (Symposium, Poster Session for students)